U.S. DEPARTMENT OF ENERGY
OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT
OFFICE OF QUALITY ASSURANCE

AUDIT REPORT M&O-ARP-98-16

OF THE

CIVILIAN RADIOACTIVE WASTE MANAGEMENT SYSTEM
MANAGEMENT AND OPERATING CONTRACTOR
AT

LAS VEGAS, NEVADA

JULY 13 THROUGH JULY 17, 1998

Prepared by: _____ Date: _____
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Approved by: _____ Date: _____
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Acting Director
Office of Quality Assurance

1.0 EXECUTIVE SUMMARY

This performance-based Quality Assurance (QA) audit was conducted at the Civilian Radioactive Waste Management System Management and Operating Contractor (CRWMS M&O) Offices, Las Vegas, Nevada, July 13-17, 1998, to evaluate the Technical Data Management System (TDMS) process. The audit team determined that, with the exception of those areas where conditions adverse to quality were identified, the CRWMS M&O has effectively implemented critical process steps for the Automated Technical Data Tracking (ATDT) system. Implementation of the critical process steps for the Site and Engineering Properties (SEP) portion of the audit was determined to be marginally effective due to: 1) the lack of controlled implementing procedures in place; and 2) documentation could not be provided to substantiate that queries used to obtain data from the SEP database had been verified and validated prior to the queries being used for software codes SUBCAT and SEPWEB. Based on concerns with the traceability and use of technical data from the system, the audit team determined that the effectiveness of the overall TDMS process requires further review. This review will be accomplished by conducting a performance-based audit of the TDMS. This audit has been scheduled for September 1998.

Three conditions adverse to quality were identified as a result of the audit, one of which was corrected during the audit. TDMS activities continue to be conducted without formal approved procedures. A new Office of Civilian Radioactive Waste Management (OCRWM) Deficiency Report (DR) LVMO-98-D-122 will be issued describing this condition. The corrective actions addressed in the response to this DR need to be consistent with the response to DR LVMO-98-D-055. This deficiency document identifies other examples of conditions adverse to quality, which are similar to those documented above. In addition, the CRWMS M&O failed to provide adequate documentation to substantiate that queries used to obtain data from the SEP database had been verified and validated prior to the queries being used for software codes SUBCAT and SEPWEB. OCRWM DR LVMO-98-D-123 will be issued to describe this condition. Details of these deficient conditions adverse to quality are presented in Section 5.5.2 of this report.

One deficiency identified by the audit team related to Records Processing Center (RPC) personnel training. This was determined to be an isolated condition that required only remedial action and was corrected prior to the post-audit meeting. Details of this condition are described in Section 5.5.4 of this report.

As a result of the audit, three recommendations are provided. These recommendations

are detailed in Section 6.0 of this report.

2.0 SCOPE

The audit was conducted to evaluate the TDMS process utilizing samples of data sets from the following deliverables (Milestone Reports) and the effectiveness of critical process steps resulting from the preparation of these deliverables:

- WBS 1.2.3.31.2.9, "The Site Scale Unsaturated Zone Flow Model of Yucca Mountain, Nevada, for the Viability Assessment," dated June 1997, Milestone SP24BM3, (Lawrence Berkeley National Laboratory).

- WBS 1.2.3.4.1.5.1, "The Site-Scale Unsaturated Zone Transport Model of Yucca Mountain," Revision 1, Milestone SP25BM3, (Los Alamos National Laboratory).

- WBS 1.2.3.1.2.5, "Near-Field and Altered-Zone Environment Report, Volume 1: Technical Basis for EBS Design," Revision 1, Milestone SP3000M3, (Lawrence Livermore National Laboratory).

For clarification, the scope of the audit was determined to start at the point of receipt of data packages by the Technical Data Management personnel that were submitted by the various National Laboratories and U.S. Geological Survey (USGS). The focus of the audit was to assess the effectiveness of the TDMS, particularly the SEP group in accepting and entering data into the database and evaluating the interface process between the TDMS, the National Laboratories, and USGS when requesting data from the database.

The audit team conducted interviews and reviews of documentation in accordance with the approved audit plan to evaluate the adequacy and effectiveness of critical process steps for TDMS activities.

2.1 Process Steps/Products/Documentation

The performance-based evaluation of process effectiveness was based upon the following:

1. Satisfactory completion of critical process steps;
2. Documentation that substantiates the quality of data;
3. Performance of trained and qualified personnel; and
4. Implementation of applicable QA program elements.

The following critical process steps were considered during the evaluation of the TDMS process:

1. Technical data base qualification;
2. Data submittal and receipt;
3. Data traceability;
4. Data input into Geographic Nodal Information Study & Evaluation System (GENISES);
5. Use of technical data;
6. Data revision/change control;
7. Data input verification;
8. Selection and training of personnel; and
9. Record submittals.

2.2 Technical Areas

The audit included a technical evaluation of the adequacy and effectiveness of the TDMS process. Details of the technical evaluation are documented in Section 5.4 of this report.

3.0 AUDIT TEAM AND OBSERVERS

Name/Title/Organization

Robert P. Hasson, Audit Team Leader, Office of Quality Assurance (OQA)
John F. Pelletier, Auditor, OQA
Terry A. Grant, Technical Specialist, CRWMS M&O

There were no observers present at the audit.

4.0 AUDIT MEETINGS AND PERSONNEL CONTACTED

A pre-audit meeting was conducted at the CRWMS M&O Offices, Las Vegas, Nevada, on July 13, 1998. Daily debriefings were held, to apprise the CRWMS M&O management and staff, of the progress of the audit and of any identified conditions adverse to quality. A post-audit meeting was conducted at the CRWMS M&O Offices,

Las Vegas, Nevada, on July 17, 1998.

Personnel contacted during the audit, including those that attended pre-audit and post-audit meetings, are listed in Attachment 1.

5.0 SUMMARY OF RESULTS

5.1 Program Effectiveness

With the exception of the areas where conditions adverse to quality were identified, the audit team concluded that critical process steps applicable to the ATDT system were effectively implemented. Implementation of the SEP activities was determined to be marginally effective. However, the overall TDMS process could not be determined during this audit due to the concerns identified and detailed in Section 5.4 of this report.

5.2 Stop Work or Immediate Corrective Actions Taken

There were no Stop Work Orders or immediate corrective actions taken as a result of the audit.

5.3 QA Program Activities

A summary table of audit results is provided in Attachment 2. Details of the audit, including the objective evidence reviewed, are documented in the audit checklist. The checklist is maintained as a QA record.

5.4 Technical Audit Activities

The audit was accomplished through personnel interviews and a review of objective evidence. The audit team identified concerns with the timeliness of submittal of data to the Technical Data Management personnel and use of data from the system. Based on these concerns, the audit team determined that the effectiveness of the overall TDMS process requires further review. The audit team has recommended to the OQA that a performance-based audit be performed to determine the traceability and use of technical data. The audit has been scheduled by OQA for September 1998.

The audit team focused mainly on the ATDT and SEP database portions of the TDMS process. The TDMS activities are not being conducted in accordance with approved implementing procedures. Implementing procedures being used were

either in draft form or part of a guideline document. This deficient condition is described in DR LVMO-98-D-122. See section 5.5.2 for details.

The CRWMS M&O failed to provide adequate documentation to substantiate that queries used to obtain data from the SEP database had been verified and validated prior to the queries being used. The software codes SUBCAT and SEPWEB used to catalog and query the data, and display data via the Internet "data used as a controlled source" were not formally verified. Based on the use of these codes for "Q" applications, they need to be controlled in accordance with the configuration management system so that any changes to the software and queries can be controlled. This deficient condition is described in DR LVMO-98-D-123. See Section 5.5.2 for details.

The audit was based on a sample set of Data Tracking Numbers (DTN) selected from three Level 3 deliverables completed in the summer of 1997 (SP3000M3, SP25BM3, and SP24BM3). These DTNs were used in three ways: (1) to test the Intranet based version of the system for utility in meeting user queries for finding and retrieving data; (2) to determine if the same data sets presented in the document, the TDMS, and records system would match; and (3) as a mechanism to evaluate database operations with Technical Data Management staff using actual data examples. Technical audit activities consisted of addressing the audit checklist questions through interviews with Technical Data Management staff and tracing the data trail from the selected documents, through the ATDT and SEP databases, and the records system using the TDMS Intranet based site. Because this was a labor-intensive activity, only a small sample of 21 DTNs were reviewed in this manner. However, it is believed that the results are representative of TDMS operations.

The question of what is the definition of "data," or more specifically, what information should or should not be submitted to the Technical Data Management personnel, continues to be raised as part of the TDMS process. ATDT personnel reported that this question was not addressed in the ATDT Site-Specific Users Manual or the ATDT Administrator's Handbook. The only written definition of data that should be submitted appears in YAP-SIII.3Q, Revision 2, "Processing of Technical Data on the Yucca Mountain Site Characterization Project," Section 3.13. Data Coordinators at the National Laboratories may have received verbal direction on data submittal priorities. Technical Data Management

personnel believe that it will not be possible to produce more definitive written direction on this issue and that this is more of a "nuclear culture" or training issue. However, interpretation of what should be assigned a DTN and submitted continues to be variable among data gathering organizations. An example of this

is deliverable SP3000M3. The acceptance criteria for this deliverable stated that, "Technical data contained within the deliverable shall be identified in the Automated Technical Data Tracking system and submitted for incorporation into the Geographic Nodal Information Study and Evaluation System (GENISIS) in accordance with YAP SIII.3Q. Verification of compliance shall be demonstrated by including as part of the deliverable: 1) a copy of the Technical Data Information Form (TDIF) generated identifying the data in the ATDT system; and 2) a copy of the transmittal letter attached to the technical data transmittal to the GENISIS Administrator." In response to this requirement, Appendix B of the document provides a listing of DTNs. The first number listed is an entry for the overall "NFER" (LL960807504241.012). This appears to be a reference to the entire Volume II of the document and no link to a database is made in ATDT system for this DTN. It seems questionable that this type of entry represents an appropriate use of the system. The follow-up audit scheduled for September 1998 should include a review of this issue with submitting organizations to determine how uniform their understanding of the requirements are and whether additional training or procedure revision is required.

SEP personnel responsible for data entry indicated that a data submission that had no problems could be entered into the database within one week of receipt. There was no current backlog of entries except a group of old EG&G Inc. database entries that had not yet been transitioned. There did appear to be significant delays when submissions were returned to the source to fix problems. Two of the DTNs in the sample fell into this category. One had been submitted on 10/24/97 and was returned because of formatting problems. At the time of the audit, there had been no revised submission from the source. The second entry was submitted on 11/13/96 and was returned because of formatting problems. There was no SEP entry for this item at the time of the audit. There are no current procedural controls in YAP-SIII.3Q on time limits for responding to rejections or for entering a submission in the database. This is detailed in Recommendation 1.

Mechanisms have been established to assure that ATDT TDIF entries are complete and accurate. ATDT personnel indicated that most entries were processed within 24 hours since most of the entries were made electronically by Laboratory Data Coordinators. ATDT TDIF entries were being electronically transmitted by the Laboratory Data Coordinators, who are part of the Technical Data Management

organization, to the ATDT Administrator. It is the Laboratory Data Coordinators' responsibility to review the entry with the data source to assure the entry is complete and the correct parameters are identified. The ATDT Administrator checks the entries for completeness. This process was found to be satisfactory.

Links between the ATDT and GENISIS databases where the actual data is located were evaluated with the ATDT Administrator. The ATDT system display has an entry next to the DTN showing whether a link exists to a database. Clicking on the number takes the user to the appropriate database entry. The ATDT Administrator also has entries that can be accessed (not available to the general user) to show the dates that ATDT and SEP entries/packages were submitted. The interviews with SEP personnel revealed that some ATDT entries never have a corresponding database entry. This is generally because the data submittal did not consist of a table of numerical values that could be entered into the database. One example from the sample was the ATDT entry for a Graphical Borehole log. The log can be found in one of the records referenced by accession number at the bottom of the ATDT form. However, the linking notation next to the DTN indicates "No link at this time." Procedural provisions need to be established to allow linking notation to reference the appropriate accession number in these cases. This resulted in Recommendation 2. It was also noted that YAP-SIII.3Q leaves the impression that all ATDT entries will eventually have some sort of corresponding database entry. The procedure should clarify whether ATDT entries should be made for items that do not qualify as "Technical Data" (e.g., the Graphical Borehole log above) and how they will be treated if entries can be made. This is documented as part of Recommendation 1.

The audit team performed a review to determine if datasets could be tracked from the documents to the TDMS and records systems. The first step in following such a trail is to determine the DTN associated with a specific dataset presented in the document. In preparing for the audit, the three deliverables selected as the sample were reviewed for datasets that could be tracked through the system. The selected datasets were usually tables or figures that provided numerical values within the text of each report. In all cases, DTNs were not directly listed at the point where the data was presented. DTNs were presented as consolidated tables of DTNs used in the chapter or the entire report. Therefore, it is up to the reader to determine the appropriate connection between data presented in the text and the appropriate DTN listed elsewhere in the report. The absence of a firm link could result in errors in identifying the appropriate DTN. This resulted in Recommendations 1 and 3.

The audit team evaluated the ability of the system to locate specific datasets when

the DTN was not known. Two of the selected numerical datasets fell into this category, in that the source document presented the data but a DTN for the data was not evident. The searches were conducted using the ATDT system. ATDT entries for the two datasets were located using one of the two available search strategies:

(1) keyword search on title; or (2) search by parameter. It was determined that searches of this type could be conducted successfully, although the searcher may have to review a long list of "hits" to succeed.

The audit team evaluated whether data entered in the SEP database could be matched with data originally selected from the deliverable tables and figures. The results of matching the 21 DTNs sampled from three selected deliverables with corresponding ATDT and DTN entries are as follows: Of the 17 samples referenced to SEP, ten had no SEP entry and could not be compared. Of the remaining seven samples, five had document entries that did not match with the SEP entry and two did match. Four other entries are included in the sample, 2 Reference Information Base (RIB) entries and 2 Model Warehouse Database entries. For the total population sampled, it appears that the document authors obtained most of the information cited or presented from other sources even though DTNs are referenced in the sample documents. These results indicated there are significant problems with the use of the TDMS by those gathering data. Additionally, some SEP entries in the selected sample consisted of extremely large files (up to 102,000 lines). These proved impossible to retrieve without the help from Technical Data Management personnel (a PC could download the file to allow browsing or printing). This raises the question of the utility of an Intranet based access system if files are too large to be retrieved.

Proper controls existed to provide a match between the data submitted to the SEP system and the entry actually made in the SEP database. The DTNs sampled for this item were the same used throughout the rest of the audit. Of those ATDT entries with a corresponding SEP entry, the records identified by accession number on the ATDT entry matched with the entry in SEP. However, the record in the Record Information System (RIS) is actually not the submission to SEP that was used to make the data entry. This is because the ATDT submission is a separate action from the SEP submission and may be performed at a later time. There is no validation that the data entered in SEP matches the record package previously submitted to the ATDT. This may result in errors between the SEP data entry and the record package, which would compromise the traceability of the data. The SEP submission can be provided separately at a later date, as illustrated by the six

examples for which data was submitted to the records system, but for which there is no corresponding SEP entry (two of the six submitted to SEP were rejected). YAP-SIII.3Q, Section 5.3.1d) requires that the submitter generate a record package at the time an ATDT submission (TDIF) is made. Of the seventeen samples that were SEP entries (i.e., not model warehouse or RIB entries), only thirteen had records in the RIS and the packages were readily retrievable by RPC personnel. Four of the ATDT entries did not have a corresponding records package listed.

Parameters used to categorize datasets in the TDMS were found to be adequately descriptive to allow for successful searches and use of the system. The ATDT and SEP elements have extensive listing parameters that are used for this purpose. A test of the system using parameters as the basis for searches was successfully conducted. However, users need to remember to search the full list of parameters (it is an alphabetical listing) to assure they have selected the most appropriate entry from the available list. A user may see data identified as “Thermal Capacity” in a document but find it listed under “Heat Capacity” in the parameter list.

The ATDT form currently has a field for listing the accession numbers of associated records. Entries into this field are made directly by RPC personnel. RPC personnel reported that entries are made into this field only for those records that are processed with an attached TDIF or have a DTN identified in the indexing information. This generally means that only records associated with the submittals to the TDMS are captured. This represents an excellent start at creating links between the two systems, but currently any other supporting records associated with the dataset would have to be retrieved with a general RIS search. Additional methods should be investigated to generate more extensive links and cross-references between TDMS and the records system. See Recommendation 2.

A review was performed to determine if there was a system to identify current users of data and notify them if datasets they had used were superceded or supplemented. SEP personnel indicated that the database is updated to reflect what data has been superseded or supplemented. Currently, notifications to each user of the data are not provided at this time. This process should be established and detailed in an implementing procedure. See Recommendation 1.

TDMS personnel involved with data entry were found to be qualified for their positions. These same personnel were verified to have training to procedure YAP-SIII.3Q. However, RPC personnel were not trained to this procedure. The audit team verified that, although RPC personnel were not trained to YAP-SIII.3Q, RPC personnel did follow explicit guidelines established that contained the procedural

requirements. RPC personnel performed immediate corrective actions during the audit to resolve this deficiency. Details of this deficient condition can be found in Section 5.5.4 of this report.

5.5 Summary of Conditions Adverse to Quality

The audit team identified three conditions adverse to quality during the audit. The corrective actions related to two of these conditions are addressed in DR LVMO-98-D-122 and LVMO-98-D-123, identified in Section 5.5.2 of this report. There was one deficient condition identified and corrected prior to the post-audit meeting. This deficient condition is detailed in Section 5.5.4 of this report.

5.5.1 Corrective Action Requests

None.

5.5.2 Deficiency Reports

LVMO-98-D-122

This deficient condition is similar to a previous DR, LVMO-98-D-055, issued to the CRWMS M&O on March 26, 1998. The DR documents the lack of procedural controls in place for the electronic management of data activities in regard to Quality Assurance Requirements and Description (QARD), Supplement V requirements. The corrective actions addressed in the response to LVMO-98-D-122 need to be consistent with the response to DR LVMO-98-D-055.

The audit team identified that TDMS activities continue to be conducted without the use of formal approved procedures. Implementing procedures used to verify data input and control the ATDT, SEP and RIB data processes were not controlled or approved. The Activity Evaluation form for "GENISES Database Development, Operation and Maintenance" indicates that the verification of the incorporation of data into the GENISES database is a "Q" activity; however, Technical Data Management personnel were working to the following draft procedures

and guidelines:

> NWI-TDM-002Q, Concurrence Draft, "Development, Review, Placement, and Maintenance of Individual RIB Items";
>
> NWI-TDM-003Q, Draft B, "Verification of Data Incorporation into SEP Database"; and
>
> GENISES Guidebook (desktop reference manual).

LVMO-98-D-123

The CRWMS M&O failed to provide adequate documentation to substantiate that queries used to obtain data from the SEP database had been verified and validated prior to the queries being used. The software codes, SUBCAT and SEPWEB used to catalog and query the data, and display data via the Internet "data used as a controlled source of information," were not formally verified. Based on the use of these codes for "Q" applications, they need to be controlled in accordance with the configuration management system so that any changes to the software and queries can be controlled.

5.5.3 Performance Reports

None.

5.5.4 Conditions Adverse to Quality Corrected During the Audit

Deficiencies considered isolated in nature and only requiring remedial action can be corrected during the audit. The following deficiency was identified and corrected during the audit:

> Contrary to the requirements of Paragraph 2.2.12 A, of QARD, DOE/RW-0333P, Revision 8, RPC personnel were not trained to implementing procedure YAP-SIII.3Q, Revision 2, "Processing of Technical Data on the Yucca Mountain Site Characterization Project." This procedure establishes the requirement for RPC personnel to update the ATDT System by cross-referencing technical data accession number(s) to the TDIF DTN. The audit team verified that, although RPC personnel were not trained to YAP-SIII.3Q, personnel did follow guidelines established that

contained the requirement of the procedure. The audit team verified that RPC personnel completed the training to procedure YAP-SIII.3Q during the audit.

6.0 RECOMMENDATIONS

The following recommendations resulted from the audit and are presented for the DOE Yucca Mountain Site Characterization Office (DOE/YMSCO) (Recommendation 1), and CRWMS M&O management (Recommendations 2 and 3) consideration:

1. Procedure YAP-SIII.3Q should be revised to delineate the process to define the necessary process steps for the TDMS. The procedure does not reflect the current process in use.

   The procedure does not include provisions that establish time frames from when a DTN is issued to when the data is received by the TDMS.

   The procedure does not establish a formal method for resolving data packages that are not in compliance with Attachment 5, "GENISES Submittal Format Requirements," and have been returned to the submitter. As a result, it was noted that this has caused excessive delays in revising noncompliant data packages and their subsequent entry into the GENESIS system.

   Consideration should be given to revising Section 5.6b of the procedure to strengthen this requirement. DTNs were not directly listed at the point where the data was presented in the document. DTNs were presented as consolidated tables of DTNs used in the chapter or the entire report. Therefore, it is up to the reader to determine the appropriate connection between data presented in the text and the appropriate DTN listed elsewhere in the report. The absence of a firm link could result in errors in identifying the appropriate DTN.

   The procedure requires the users to be responsible for identifying the most current available data. The process for the tracking and notification to each user for superseded or supplemental data is not defined. A system should be established for Technical Data Management personnel and users of the data.

   Additionally, the procedure should clarify whether ATDT entries should be made for items that do not qualify as "Technical Data" and how they will be treated if entries can be made. (DOE/YMSCO)

2. The links to record accession numbers should be expanded by adding numbers for supporting records (scientific notebooks, review records, etc.) and submittal and verification records from the SEP process. There is currently a place at the bottom of the ATDT entry for "RPC Accession Number(s)." Linking to the records associated with accession numbers revealed that records are generally only those associated with the database submission. Ideally, a more complete set of accession numbers for the supporting records such as, scientific notebooks, technical reviews, calibrations, etc. would ensure the verification of qualification status. This would also improve the integration between the TDMS and records.

   If Technical Data Management personnel determine that a link between the ATDT system and a database such as SEP, will not be made due to the format of the data, graphical rather than tabular, the ATDT entry should point to the accession number where the data can be found rather than indicating, "No link at this time." (CRWMS M&O)

3. Project documents such as technical reports should demonstrate a direct link between the source DTN and the data presented in the documents. This would enhance the traceability of data sets from the technical database, through the report, to the origin of the data. Current practice is to place DTN references in a table in the document that is removed from the location where a table or figure presenting data is located. This makes it difficult to make a direct link between the data and the correct DTN that should be the source for the information. (CRWMS M&O)

7.0 LIST OF ATTACHMENTS

Attachment 1: Personnel Contacted during the Audit
Attachment 2: Summary Table of Audit Results

ATTACHMENT 1
PERSONNEL CONTACTED DURING THE AUDIT

Name	Organization/Title	Pre-audit Meeting	Contacted During Audit	Post-audit Meeting
Abend, G.	M&O/RIB Data Base Analyst		X	
Badredine, T.	M&O/Supervisor, Records Processing Center		X	
Blaylock, J.	DOE/Engineer	X		X
Bodnar, S.	M&O/Manager,Technical Data	X	X	X
Calloway, D.	M&O/Manager, Configuration Management	X		
Clark, J.K.	M&O/Deputy Assistant General Manager	X	X	X
Fogdall, S.	M&O/Manager, PIM		X	X
Hayes, L.	M&O/Manager, NEPO			X
Herbert, J.	M&O/Supervisor, Records Processing Center		X	
Johnson, C.	M&O/Software Development & Operations		X	
Jones, P.	M&O/SEP Data Base Analyst	X	X	X
Justice, R.	M&O/Engineering Assurance Engineer	X		
Keeler, R.	M&O/Performance Assessment Liaison			X
Keith, D.	M&O/ATDT Data Base Analyst	X	X	
Keller, D.	M&O/Manager, Records Processing Center	X		
Leake, H.	M&O/Supervisor, IRM		X	
Lentz, H.	OQA/Quality Assurance Specialist			X
Low, J.	M&O/Manager, IRM		X	
McConnell, K.	M&O/Lead, Records Processing Center		X	
Miller, E.	M&O/Configuration Management			X
Mueller, T.	M&O/Records Analyst		X	X
Provost, E.	M&O/SEP Data Base Analyst	X	X	
Smith, C.	M&O/Records Services		X	
Spangler, E.	M&O/Training & Development		X	
Warren, C.	OQA/Internal Audit Lead			X

Legend:

ATDT	Automated Technical Data Tracking
IRM	Information Resource Management
NEPO	Natural Environmental Programs Operation
OQA	Office of Quality Assurance
PIM	Performance Information Management
RIB	Reference Information Base
SEP	Site and Engineering Properties

ATTACHMENT 2
SUMMARY TABLE OF AUDIT RESULTS

TECHNICAL DATA MANAGEMENT PROCESS

Process Steps	Details (Checklist)	Deficiencies	Recommendations	Process Effectiveness	Overall
Technical Data Base Qualification	Pgs. 1-5	DR LVMO-98-D-123		UNSAT	
Data submittal and Receipt	Pg. 4			SAT	
Data Traceability	Pgs. 4-6,8		# 2 & 3	SAT	
Data Input into GENISES	Pgs. 5-9,11			SAT	
Use of Technical Data	Pg. 10			SAT	
Data Revision/Change Control	Pg. 10			SAT	
Data Input Verification	Pg. 12			SAT	
Selection and Training of Personnel	Pgs. 12,13	CDA # 1		SAT	
Record Submittals	Pg. 13			SAT	
Documentation That Substantiates The Quality of Data	Pgs. 8,9	DR LVMO-98-D-122	# 1	UNSAT	
ATDT Process					Effective
SEP Process					Marginally Effective
TDMS Process					Indeterminate

LEGEND:

SAT…….Satisfactory
UNSAT……..Unsatisfactory